

November 8, 2013

Mr. Mark Nations
The Doe Run Company
P.O. Box 1633
Desloge, Missouri 63601

Re: Ambient Air Monitoring Report – Rivermines Site

Dear Mr. Nations:

Please find attached the July 2013 “*Ambient Air Monitoring Report*” for The Doe Run Company at the Rivermines Sites, located near Park Hills, Missouri.

This report will include the following:

- **Glossary of Terms** – Listing of the abbreviations used for each parameter and unit.
- **Ambient Air Quality Standards** – Lists the maximum allowable concentrations for the measured parameters.
- **TSP, Lead & PM₁₀ Particulate Summaries** – Includes the averages of each monitored parameter, which relates to the federal standards.
- **Particulate and Lead Analysis Spreadsheets**.
- **Lab Results (lead & cadmium)** – Lab reports from Inovatia Laboratories, LLC.
- **Meteorological Data Printouts** – This supplies printouts of each parameter.

Barr Engineering Company offers this report as an independent laboratory. This includes the weighing of filters, obtaining lead and cadmium analysis, compiling the data, and preparing the report. No interpretation of the data or analysis of the results is implied or intended. Should you have any questions regarding this report, please call.

Respectfully,

Richard J. Campbell

Richard J. Campbell, PE
Chemical Engineer
Senior Environmental Consultant

c: Bob Hinkson
Jason Gunter
Ty Morris

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Ambient Air Monitoring Report

***Rivermines
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

July 2013



Ambient Air Monitoring Report

***Rivermines
Park Hills, Missouri***

***Prepared for
The Doe Run Company***

July 2013



***1001 Diamond Ridge Suite 1100
Jefferson City, MO 65109
Phone: (573) 638-5000
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GLOSSARY OF TERMS

$\mu\text{g}/\text{m}^3$	Micrograms per Cubic Meter
mph	Miles per Hour
Wind Direction	Degrees from True North
TSP	Total Suspended Particulate
PM ₁₀	Particulate Matter - 10 Microns or Less
mmHg	Millimeters of Mercury

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

PM ₁₀ – Particulate Matter	24-Hour*	Annual Maximum	150 $\mu\text{g}/\text{m}^3$
Lead	Calendar Quarter	Arithmetic Mean	1.5 $\mu\text{g}/\text{m}^3$
Lead	Rolling 3-Month Average	Arithmetic Mean	0.15 $\mu\text{g}/\text{m}^3$

TSP (Total Suspended Particulate) – There are no Federal Standards that apply solely for TSP.

*This standard must be exceeded more than once a year to constitute a violation.



TSP and Lead Concentration Summary

Rivermines
Park Hills, Missouri

Date 2013	TSP Big River #4 ($\mu\text{g}/\text{m}^3$)	TSP South #1 ($\mu\text{g}/\text{m}^3$)	TSP North #2 ($\mu\text{g}/\text{m}^3$)	TSP East #3 ($\mu\text{g}/\text{m}^3$)	LEAD Big River #4 ($\mu\text{g}/\text{m}^3$)	LEAD South #1 ($\mu\text{g}/\text{m}^3$)	LEAD North #2 ($\mu\text{g}/\text{m}^3$)	LEAD East #3 ($\mu\text{g}/\text{m}^3$)
7/1/13	46	92	33	34	0.026	0.584	0.010	0.012
7/2/13	17	19	21	18	0.000	0.031	0.031	0.000
7/3/13	28	34	24	26	0.010	0.025	0.018	0.012
7/8/13	24	18	24	22	0.019	0.012	0.071	0.016
7/9/13	29	27	32	28	0.021	0.022	0.088	0.022
7/10/13	24	43	24	23	0.063	0.185	0.018	0.013
7/11/13	32	40	28	35	0.007	0.062	0.000	0.015
7/12/13	25	22	23	23	0.010	0.018	0.006	0.013
7/15/13	20	14	13	18	0.020	0.034	0.010	0.010
7/16/13	31	22	22	21	0.042	0.066	0.074	0.021
7/17/13	33	32	23	25	0.026	0.074	0.198	0.033
7/18/13	29	34	22	27	0.017	0.046	0.009	0.039
7/19/13	25	20	21	22	0.013	0.007	0.020	0.008
7/22/13	24	32	19	24	0.056	0.122	0.096	0.096
7/23/13	46	43	26	25	0.083	0.088	0.031	0.016
7/24/13	33	58	25	28	0.014	0.203	0.034	0.024
7/25/13	41	51	24	32	0.055	0.198	0.011	0.016
7/26/13	15	16	16	15	0.000	0.023	0.018	0.010
7/29/13	INVALID	43	INVALID	23	INVALID	0.067	INVALID	0.022
7/30/13	9	34	16	13	0.000	0.124	0.000	0.000
7/31/13	19	157	12	17	0.015	0.417	0.000	0.013
Monthly Average	28	41	22	24	0.025	0.115	0.037	0.020
Jun 2013					0.037	0.110	0.063	0.026
May 2013					0.023	0.031	0.063	0.018
Rolling 3-month Average					0.03	0.09	0.05	0.02
					3-month Average Lead NAAQS $\mu\text{g}/\text{m}^3$			
								0.15

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.



Particulate Summary

Rivermines
Park Hills, Missouri

Date 2013	PM ₁₀ Big River #4 (µg/m ³)	PM ₁₀ South #1 (µg/m ³)	PM ₁₀ North #2 (µg/m ³)	PM ₁₀ East #3 (µg/m ³)	PM ₁₀ NAAQS (µg/m ³)
3-Jul	17	19	17	16	150
9-Jul	17	15	18	14	150
12-Jul	16	17	15	15	150
15-Jul	15	12	9	11	150
18-Jul	16	19	13	14	150
21-Jul	10	10	9	9	150
24-Jul	14	21	10	11	150
27-Jul	8	4	7	43	150
30-Jul	10	9	7	7	150
Monthly Average	14	14	12	16	

Please see the particulate analysis sheets for explanations of missing or invalid data.

Note: A summary of the Big River #4 sampler data is also included, because it was part of the QA plan.

Particulate and Lead Analysis



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4557

Big River #4 Primary

Sample Date 2013	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. mg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP µg/m ³	Lead µg/m ³
7/1/2013	8803583	0.0809	46	20	743.1	35.6	0.952	1.238	1.231	23.71	1751	46	0.026
7/2/2013	8803572	0.0301	< 10	17	744.8	35.2	0.953	1.233	1.241	23.43	1745	17	0.000
7/3/2013	8803562	0.0487	17	21	746.1	35.7	0.952	1.240	1.232	23.69	1751	28	0.010
7/8/2013	8803552	0.0408	32	27	746.2	36.5	0.951	1.250	1.217	23.57	1721	24	0.019
7/9/2013	8803541	0.0507	37	30	745.0	36.7	0.951	1.254	1.210	23.73	1723	29	0.021
7/10/2013	8803531	0.0423	109	26	743.5	36.2	0.951	1.247	1.217	23.66	1728	24	0.063
7/11/2013	8803521	0.0562	13	23	745.3	35.9	0.952	1.243	1.226	23.69	1743	32	0.007
7/12/2013	8803510	0.0446	18	21	746.2	35.7	0.952	1.240	1.232	23.71	1753	25	0.010
7/15/2013	8803500	0.0350	34	26	749.0	36.3	0.952	1.249	1.225	23.59	1734	20	0.020
7/16/2013	8805590	0.0542	73	27	751.0	36.4	0.951	1.250	1.226	23.63	1738	31	0.042
7/17/2013	8805579	0.0570	45	27	751.3	36.4	0.951	1.250	1.226	23.64	1739	33	0.026
7/18/2013	8805569	0.0506	29	28	747.6	36.5	0.951	1.251	1.219	23.70	1733	29	0.017
7/19/2013	8805561	0.0438	22	27	743.8	36.5	0.951	1.250	1.213	23.68	1723	25	0.013
7/22/2013	8805549	0.0404	96	26	740.9	36.3	0.951	1.248	1.211	23.49	1706	24	0.056
7/23/2013	8805537	0.0792	142	27	740.8	36.4	0.951	1.249	1.210	23.50	1706	46	0.083
7/24/2013	8805527	0.0570	25	22	743.7	35.8	0.952	1.241	1.226	23.46	1726	33	0.014
7/25/2013	8805517	0.0712	95	20	746.5	35.6	0.952	1.239	1.236	23.39	1734	41	0.055
7/26/2013	8805506	0.0265	< 10	21	745.4	35.6	0.952	1.239	1.233	23.54	1741	15	0.000
7/29/2013	8718696	0.0375	27	20	747.6	35.6	0.952	1.239	1.237	22.49	1670	INVALID	INVALID
7/30/2013	8718686	0.0165	< 10	22	745.8	35.7	0.952	1.240	1.231	23.67	1748	9	0.000
7/31/2013	8718675	0.0325	26	24	745.1	36.1	0.952	1.245	1.223	23.64	1735	19	0.015

Data Captured	TSP	Lead
Valid Samples:	20	20
Scheduled Samples:	21	21
Percent Data Captured:	95%	95%

Monthly Average:	28	0.025
Standard Deviation:	10	0.023
Maximum:	46	0.083
Minimum:	9	0.000

NOTES

7/4/2013 - 7/5/2013 - Holiday - No samples scheduled
7/29/2013 - 7/30/2013 - Sample runtime short; Limits are 24 hour ± 1 hour

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.))*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in µg/std m³

Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P2940

Elvins Rivermines Site #1 by Office

Sample Date 2013	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. mg	T _{av} C	P _{av} mmHg	P _r mmHg	Ratio P _r /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP µg/m ³	Lead µg/m ³
7/1/2013	8803580	0.1607	1014	20	743.1	35.6	0.952	1.243	1.236	23.44	1738	92	0.584
7/2/2013	8803569	0.0336	56	17	744.8	35.2	0.953	1.239	1.247	23.82	1782	19	0.031
7/3/2013	8803559	0.0596	44	21	746.1	35.7	0.952	1.246	1.237	23.80	1767	34	0.025
7/8/2013	8803548	0.0316	20	27	746.2	36.5	0.951	1.256	1.223	23.78	1745	18	0.012
7/9/2013	8803538	0.0461	38	30	745.0	36.7	0.951	1.260	1.216	23.81	1737	27	0.022
7/10/2013	8803528	0.0755	321	26	743.5	36.2	0.951	1.253	1.223	23.71	1739	43	0.185
7/11/2013	8803518	0.0700	109	23	745.3	35.9	0.952	1.249	1.232	23.84	1762	40	0.062
7/12/2013	8803507	0.0391	32	21	746.2	35.7	0.952	1.246	1.238	23.82	1769	22	0.018
7/15/2013	8805597	0.0239	60	26	749.0	36.3	0.952	1.254	1.230	23.80	1757	14	0.034
7/16/2013	8805587	0.0388	115	27	751.0	36.4	0.951	1.256	1.232	23.82	1760	22	0.066
7/17/2013	8805576	0.0563	129	27	751.3	36.4	0.951	1.256	1.232	23.78	1758	32	0.074
7/18/2013	8805566	0.0592	79	28	747.6	36.5	0.951	1.257	1.224	23.59	1733	34	0.046
7/19/2013	8805558	0.0351	12	27	743.8	36.5	0.951	1.256	1.219	23.81	1741	20	0.007
7/22/2013	8805545	0.0559	210	26	740.9	36.3	0.951	1.254	1.216	23.63	1724	32	0.122
7/23/2013	8805534	0.0751	152	27	740.8	36.4	0.951	1.254	1.215	23.90	1742	43	0.088
7/24/2013	8805524	0.1021	357	22	743.7	35.8	0.952	1.247	1.232	23.82	1761	58	0.203
7/25/2013	8805514	0.0901	348	20	746.5	35.6	0.952	1.244	1.241	23.53	1752	51	0.198
7/26/2013	8805503	0.0284	40	21	745.4	35.6	0.952	1.244	1.238	23.86	1773	16	0.023
7/29/2013	8718693	0.0757	117	20	747.6	35.6	0.952	1.244	1.242	23.44	1747	43	0.067
7/30/2013	8718683	0.0600	219	22	745.8	35.7	0.952	1.246	1.237	23.87	1771	34	0.124
7/31/2013	8718672	0.2750	732	24	745.1	36.1	0.952	1.251	1.229	23.82	1757	157	0.417

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	41	0.115
Standard Deviation:	32	0.144
Maximum:	157	0.584
Minimum:	14	0.007

NOTES

7/4/2013 - 7/5/2013 - Holiday - No samples scheduled
7/12/2013 - Routine Maintenance

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_r = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

P_r = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_r/P_a = pressure ratio of P_r and P_{av} = 1 - P_r/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in µg/std m³

Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P2941

Elvins Rivermines Site #2 Wood & Barton

Sample Date 2013	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. mg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP µg/m ³	Lead µg/m ³
7/1/2013	8803582	0.0562	18	20	743.1	35.6	0.952	1.227	1.219	23.44	1715	33	0.010
7/2/2013	8803571	0.0363	54	17	744.8	35.2	0.953	1.222	1.230	23.59	1741	21	0.031
7/3/2013	8803561	0.0416	32	21	746.1	35.7	0.952	1.230	1.221	23.62	1730	24	0.018
7/8/2013	8803550	0.0414	121	27	746.2	36.5	0.951	1.239	1.207	23.68	1715	24	0.071
7/9/2013	8803540	0.0537	150	30	745.0	36.7	0.951	1.243	1.199	23.63	1700	32	0.088
7/10/2013	8803530	0.0402	31	26	743.5	36.2	0.951	1.236	1.206	23.56	1705	24	0.018
7/11/2013	8803520	0.0478	< 10	23	745.3	35.9	0.952	1.232	1.215	23.46	1711	28	0.000
7/12/2013	8803509	0.0402	10	21	746.2	35.7	0.952	1.229	1.222	23.53	1725	23	0.006
7/15/2013	8805599	0.0219	17	26	749.0	36.3	0.952	1.238	1.214	23.56	1717	13	0.010
7/16/2013	8805589	0.0381	126	27	751.0	36.4	0.951	1.239	1.216	23.42	1708	22	0.074
7/17/2013	8805578	0.0397	341	27	751.3	36.4	0.951	1.240	1.216	23.66	1726	23	0.198
7/18/2013	8805568	0.0377	16	28	747.6	36.5	0.951	1.240	1.208	23.52	1705	22	0.009
7/19/2013	8805560	0.0361	34	27	743.8	36.5	0.951	1.239	1.203	23.64	1706	21	0.020
7/22/2013	8805548	0.0317	161	26	740.9	36.3	0.951	1.237	1.200	23.34	1681	19	0.096
7/23/2013	8805536	0.0440	52	27	740.8	36.4	0.951	1.238	1.199	23.41	1684	26	0.031
7/24/2013	8805526	0.0425	58	22	743.7	35.8	0.952	1.230	1.216	23.51	1715	25	0.034
7/25/2013	8805516	0.0412	19	20	746.5	35.6	0.952	1.227	1.225	23.47	1724	24	0.011
7/26/2013	8805505	0.0273	31	21	745.4	35.6	0.952	1.228	1.222	23.40	1715	16	0.018
7/29/2013	8718695	0.0414	60	20	747.6	35.6	0.952	1.228	1.226	22.23	1635	INVALID	INVALID
7/30/2013	8718685	0.0269	< 10	22	745.8	35.7	0.952	1.230	1.220	23.42	1715	16	0.000
7/31/2013	8718674	0.0207	< 10	24	745.1	36.1	0.952	1.234	1.213	23.49	1709	12	0.000

Data Captured	TSP	Lead
Valid Samples:	20	20
Scheduled Samples:	21	21
Percent Data Captured:	95%	95%

Monthly Average:	22	0.037
Standard Deviation:	5	0.048
Maximum:	33	0.198
Minimum:	12	0.000

NOTES

7/4/2013 - 7/5/2013 - Holiday - No samples scheduled
7/29/2013 - 7/30/2013 - Sample runtime short; Limits are 24 hour ± 1 hour

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.))*1.868

P_f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in µg/std m³

Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P4475

Elvins Rivermines Site #3 WTP

Sample Date 2013	Filter ID	TSP Filter Net Wt. g	Lead Total Wt. mg	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _a	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Concentrations TSP µg/m ³	Lead µg/m ³
7/1/2013	8803581	0.0592	21	20	743.1	35.6	0.952	1.225	1.217	23.72	1732	34	0.012
7/2/2013	8803570	0.0320	< 10	17	744.8	35.2	0.953	1.219	1.228	23.78	1752	18	0.000
7/3/2013	8803560	0.0460	21	21	746.1	35.7	0.952	1.227	1.219	23.86	1745	26	0.012
7/8/2013	8803549	0.0382	27	27	746.2	36.5	0.951	1.236	1.204	23.78	1718	22	0.016
7/9/2013	8803539	0.0481	37	30	745.0	36.7	0.951	1.240	1.197	23.82	1711	28	0.022
7/10/2013	8803529	0.0390	23	26	743.5	36.2	0.951	1.233	1.204	23.74	1714	23	0.013
7/11/2013	8803519	0.0597	26	23	745.3	35.9	0.952	1.230	1.213	23.72	1726	35	0.015
7/12/2013	8803508	0.0397	23	21	746.2	35.7	0.952	1.227	1.219	23.90	1748	23	0.013
7/15/2013	8805598	0.0317	17	26	749.0	36.3	0.952	1.235	1.211	23.66	1720	18	0.010
7/16/2013	8805588	0.0360	36	27	751.0	36.4	0.951	1.236	1.213	23.76	1729	21	0.021
7/17/2013	8805577	0.0435	57	27	751.3	36.4	0.951	1.237	1.213	23.80	1732	25	0.033
7/18/2013	8805567	0.0460	67	28	747.6	36.5	0.951	1.237	1.205	23.65	1711	27	0.039
7/19/2013	8805559	0.0381	14	27	743.8	36.5	0.951	1.236	1.200	23.75	1710	22	0.008
7/22/2013	8805546	0.0407	163	26	740.9	36.3	0.951	1.234	1.197	23.69	1702	24	0.096
7/23/2013	8805535	0.0425	27	27	740.8	36.4	0.951	1.235	1.196	23.73	1703	25	0.016
7/24/2013	8805525	0.0487	41	22	743.7	35.8	0.952	1.228	1.213	23.78	1731	28	0.024
7/25/2013	8805515	0.0552	27	20	746.5	35.6	0.952	1.225	1.222	23.41	1717	32	0.016
7/26/2013	8805504	0.0269	18	21	745.4	35.6	0.952	1.226	1.220	23.73	1737	15	0.010
7/29/2013	8718694	0.0409	38	20	747.6	35.6	0.952	1.226	1.224	23.75	1744	23	0.022
7/30/2013	8718684	0.0220	< 10	22	745.8	35.7	0.952	1.227	1.218	23.72	1733	13	0.000
7/31/2013	8718673	0.0298	23	24	745.1	36.1	0.952	1.231	1.210	23.75	1724	17	0.013

Data Captured	TSP	Lead
Valid Samples:	21	21
Scheduled Samples:	21	21
Percent Data Captured:	100%	100%

Monthly Average:	24	0.020
Standard Deviation:	6	0.020
Maximum:	35	0.096
Minimum:	13	0.000

NOTES

7/4/2013 - 7/5/2013 - Holiday - No samples scheduled

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

Q_a = look up table volumetric flow rate

P_{av} = average station pressure in millimeters of mercury

Q_{std} = total sample volumetric flow rate corrected to standard conditions

P_f = (((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868

V_{std} = total sample volume corrected to standard conditions

P_t = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868

TSP = mass concentration in µg/std m³

P_f/P_a = pressure ratio of P_f and P_{av} = 1 - P_f/P_{av}

Lead = mass concentration in µg/std m³



TSP and Lead Analysis

The Doe Run Company

SAMPLER ID P04558

Big River Site #4 - QA

Valid Samples: 8 8

Scheduled Samples: 8 8

Percent Data Captured: 100% 100%

Monthly Average: 30 0.056

Standard Deviation: 12 0.089

Maximum: 47 0.264

Minimum: 10 0.000

NOTES

7/4/2013 - Holiday - No samples scheduled

Chain of Custody No. 13-0778 Filter ID 8803575 corrected date is 07/09/2013.

Chain of Custody No. 13-0778 Filter ID 8803551 corrected date is 07/11/2013.

DEFINITIONS and CALCULATIONS

T_{av} = average temperature in degrees Celcius

P_{av} = average station pressure in millimeters of mercury

$$P_f = (((\text{Temp in } {}^\circ\text{Kelvin} * \text{Temp Slope}) + \text{Temp Int.})) * 1.868$$

$$P_t = ((\text{Temp in } {}^{\circ}\text{Kelvin} * 0.0664) + (-0.4213)) * 1.868$$

P_0/P_1 = pressure ratio of P_0 and $P_{\infty} = 1 - P_f/P_{\infty}$

Q_a = look up table volumetric flow rate

Q_{std} = total sample volumetric flow rate corrected to standard conditions

V_{std} = total sample volume corrected to standard conditions

TSP = mass concentration in $\mu\text{g}/\text{std m}^3$

[lead] = mass concentration in $\mu\text{g}/\text{std m}^3$



PM₁₀ Analysis

The Doe Run Company

Big River Site #4 - Primary																			
Sample Date	Filter ID	PM10 Filter Net Wt.	T _{av} C	P _{av} mmHg	P _f mmHg	Ratio P _f /P _{av}	Q _a m ³ /min	Q _{std} m ³ /min	Elapsed Time hr	Sample Volume V _{std} m ³	Mass Conc. PM ₁₀ µg/m ³								
7/3/2013	292188	0.0273	21	746.1	35.7	0.952	1.146	1.138	23.60	1611	17								
7/9/2013	292178	0.0271	30	745.0	36.7	0.951	1.158	1.117	23.61	1583	17								
7/12/2013	292166	0.0256	21	746.2	35.7	0.952	1.145	1.138	23.66	1616	16								
7/15/2013	292156	0.0233	26	749.0	36.3	0.952	1.153	1.131	23.60	1602	15								
7/18/2013	292146	0.0254	28	747.6	36.5	0.951	1.156	1.126	23.63	1596	16								
7/21/2013	292137	0.0158	24	742.2	36.1	0.951	1.149	1.126	23.66	1598	10								
7/24/2013	292124	0.0219	22	743.7	35.8	0.952	1.146	1.133	23.65	1608	14								
7/27/2013	292113	0.0133	20	744.3	35.6	0.952	1.144	1.137	23.67	1615	8								
7/30/2013	292103	0.0158	22	745.8	35.7	0.952	1.146	1.137	23.64	1613	10								
Valid Samples: 9				Monthly Average: 14															
Scheduled Samples: 9				Standard Deviation: 3															
Percent Data Captured: 100%				Maximum: 17															
				Minimum: 8															
NOTES																			
7/6/2013 - Holiday - No samples scheduled																			
DEFINITIONS and CALCULATIONS																			
T _{av} = average temperature in degrees Celcius																			
P _{av} = average station pressure in millimeters of mercury																			
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																			
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																			
P _f /P _{av} = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																			
Q _a = look up table volumetric flow rate																			
Q _{std} = sample volumetric flow rate corrected to standard conditions																			
V _{std} = sample volume corrected to standard conditions																			



PM₁₀ Analysis

The Doe Run Company

Sampler ID P4601								Elvins Rivermines Site #1 by Office			
Sample Date	Filter ID	PM10 Filter Net Wt.	T _{av}	P _{av}	P _f	Ratio P _f /P _a	Q _a	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀ µg/m ³
2013	ID	g	C	mmHg	mmHg		m ³ /min	m ³ /min	hr	m ³	
7/3/2013	292185	0.0305	21	746.1	35.7	0.952	1.118	1.111	23.61	1573	19
7/9/2013	292174	0.0232	30	745.0	36.7	0.951	1.130	1.091	23.59	1544	15
7/12/2013	292163	0.0272	21	746.2	35.7	0.952	1.118	1.111	23.66	1578	17
7/15/2013	292153	0.0195	26	749.0	36.3	0.952	1.126	1.105	23.61	1565	12
7/18/2013	292142	0.0288	28	747.6	36.5	0.951	1.128	1.099	23.53	1551	19
7/21/2013	292134	0.0150	24	742.2	36.1	0.951	1.122	1.098	23.60	1555	10
7/24/2013	292121	0.0329	22	743.7	35.8	0.952	1.119	1.106	23.58	1564	21
7/27/2013	292110	0.0058	20	744.3	35.6	0.952	1.117	1.110	23.63	1574	4
7/30/2013	289899	0.0144	22	745.8	35.7	0.952	1.119	1.110	23.57	1570	9



PM₁₀ Analysis

The Doe Run Company

Elvins Rivermines Site #2 Wood & Barton																			
SAMPLER ID	P4507	PM10 Filter Net Wt.	T _{av}	P _{av}	P _f	Ratio	Q _a	Q _{std}	Sample Volume V _{std}	Mass Conc. PM ₁₀									
Sample Date	Filter ID	g	C	mmHg	mmHg	P _o /P _a	m ³ /min	m ³ /min	hr	μg/m ³									
7/3/2013	292187	0.0275	21	746.1	35.7	0.952	1.139	1.131	24.00	1629									
7/9/2013	292176	0.0292	30	745.0	36.7	0.951	1.151	1.111	23.96	1597									
7/12/2013	292165	0.0240	21	746.2	35.7	0.952	1.139	1.132	23.09	1568									
7/15/2013	292155	0.0144	26	749.0	36.3	0.952	1.146	1.125	24.78	1672									
7/18/2013	292144	0.0207	28	747.6	36.5	0.951	1.149	1.119	23.96	1609									
7/21/2013	292136	0.0136	24	742.2	36.1	0.951	1.142	1.118	23.89	1603									
7/24/2013	292123	0.0164	22	743.7	35.8	0.952	1.139	1.126	24.01	1622									
7/27/2013	292112	0.0117	20	744.3	35.6	0.952	1.137	1.130	23.89	1620									
7/30/2013	292101	0.0115	22	745.8	35.7	0.952	1.139	1.130	23.95	1624									
Valid Samples:	9																		
Scheduled Samples:	9																		
Percent Data Captured:	100%																		
NOTES																			
7/6/2013 - Holiday - No samples scheduled																			
DEFINITIONS and CALCULATIONS																			
T _{av} = average temperature in degrees Celcius																			
P _{av} = average station pressure in millimeters of mercury																			
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																			
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																			
P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																			
Q _a = look up table volumetric flow rate																			
Q _{std} = sample volumetric flow rate corrected to standard conditions																			
V _{std} = sample volume corrected to standard conditions																			
Monthly Average: 12																			
Standard Deviation: 4																			
Maximum: 18																			
Minimum: 7																			



PM₁₀ Analysis

The Doe Run Company

Elvins Rivermines Site #3 WTP																				
SAMPLER ID	P2951	PM10 Filter Net Wt.	T _{av}	P _{av}	P _f	Ratio	Q _a	Q _{std}	Elapsed Time	Sample Volume V _{std}	Mass Conc. PM ₁₀									
Sample Date	Filter ID	g	C	mmHg	mmHg	P _o /P _a	m ³ /min	m ³ /min	hr	m ³	µg/m ³									
7/3/2013	292186	0.0264	21	746.1	35.7	0.952	1.147	1.139	23.42	1601	16									
7/9/2013	292175	0.0226	30	745.0	36.7	0.951	1.159	1.118	23.44	1573	14									
7/12/2013	292164	0.0246	21	746.2	35.7	0.952	1.147	1.140	23.46	1604	15									
7/15/2013	292154	0.0172	26	749.0	36.3	0.952	1.154	1.133	23.47	1595	11									
7/18/2013	292143	0.0214	28	747.6	36.5	0.951	1.157	1.127	23.43	1584	14									
7/21/2013	292135	0.0150	24	742.2	36.1	0.951	1.150	1.127	23.47	1586	9									
7/24/2013	292122	0.0179	22	743.7	35.8	0.952	1.147	1.134	23.44	1595	11									
7/27/2013	292111	0.0683	20	744.3	35.6	0.952	1.146	1.139	23.49	1605	43									
7/30/2013	289900	0.0111	22	745.8	35.7	0.952	1.147	1.138	23.47	1603	7									
Valid Samples: 9			Monthly Average: 16																	
Scheduled Samples: 9			Standard Deviation: 11																	
Percent Data Captured: 100%			Maximum: 43																	
			Minimum: 7																	
NOTES																				
7/6/2013 - Holiday - No samples scheduled																				
DEFINITIONS and CALCULATIONS																				
T _{av} = average temperature in degrees Celcius																				
P _{av} = average station pressure in millimeters of mercury																				
P _f = ((Temp in °Kelvin * Temp Slope))+Temp Int.)*1.868																				
P _f = ((Temp in °Kelvin * 0.0664)+(-0.4213))*1.868																				
P _o /P _a = pressure ratio of P _f and P _{av} = 1 - P _f /P _{av}																				
Q _a = look up table volumetric flow rate																				
Q _{std} = sample volumetric flow rate corrected to standard conditions																				
V _{std} = sample volume corrected to standard conditions																				



PM₁₀ Analysis

The Doe Run Company

Lab Results (Lead and Cadmium)



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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0745
Date Received: 07/19/13
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
133802	8803580	07/01/13	#1 South - Office	1014	< 10	07/24/13 - DS
133803	8803582	07/01/13	#2 North - W&B	18	< 10	07/24/13 - DS
133804	8803581	07/01/13	#3 East - WTP	21	< 10	07/24/13 - DS
133805	8803569	07/02/13	#1 South - Office	56	< 10	07/24/13 - DS
133806	8803571	07/02/13	#2 North - W&B	54	< 10	07/24/13 - DS
133807	8803570	07/02/13	#3 East - WTP	< 10	< 10	07/24/13 - DS
133808	8803559	07/03/13	#1 South - Office	44	< 10	07/24/13 - DS
133809	8803561	07/03/13	#2 North - W&B	32	< 10	07/24/13 - DS
133810	8803560	07/03/13	#3 East - WTP	21	< 10	07/24/13 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0778

Date Received: 08/01/13

Analysis Method: 40 CFR §50
Appendix G

Location	Elvins River Mines
----------	--------------------

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
133912	8803548	07/08/13	#1 South - Office	20	< 10	08/05/13 - DS
133913	8803550	07/08/13	#2 North - W&B	121	< 10	08/05/13 - DS
133914	8803549	07/08/13	#3 East - WTP	27	< 10	08/05/13 - DS
133915	8803538	07/09/13	#1 South - Office	38	< 10	08/05/13 - DS
133916	8803540	07/09/13	#2 North - W&B	150	< 10	08/05/13 - DS
133917	8803539	07/09/13	#3 East - WTP	37	< 10	08/05/13 - DS
133918	8803528	07/10/13	#1 South - Office	321	< 10	08/05/13 - DS
133919	8803530	07/10/13	#2 North - W&B	31	< 10	08/05/13 - DS
133920	8803529	07/10/13	#3 East - WTP	23	< 10	08/05/13 - DS
133921	8803518	07/11/13	#1 South - Office	109	< 10	08/05/13 - DS
133922	8803520	07/11/13	#2 North - W&B	< 10	< 10	08/05/13 - DS
133923	8803519	07/11/13	#3 East - WTP	26	< 10	08/05/13 - DS
133924	8803507	07/12/13	#1 South - Office	32	< 10	08/05/13 - DS
133925	8803509	07/12/13	#2 North - W&B	10	< 10	08/05/13 - DS
133926	8803508	07/12/13	#3 East - WTP	23	< 10	08/05/13 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0805
Date Received: 08/13/13
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
134082	8805597	07/15/13	#1 South - Office	60	< 10	08/15/13 - DS
134083	8805599	07/15/13	#2 North - W&B	17	< 10	08/15/13 - DS
134084	8805598	07/15/13	#3 East - WTP	17	< 10	08/15/13 - DS
134085	8805587	07/16/13	#1 South - Office	115	< 10	08/15/13 - DS
134086	8805589	07/16/13	#2 North - W&B	126	< 10	08/15/13 - DS
134087	8805588	07/16/13	#3 East - WTP	36	< 10	08/15/13 - DS
134088	8805576	07/17/13	#1 South - Office	129	< 10	08/15/13 - DS
134089	8805578	07/17/13	#2 North - W&B	341	< 10	08/15/13 - DS
134090	8805577	07/17/13	#3 East - WTP	57	< 10	08/15/13 - DS
134091	8805566	07/18/13	#1 South - Office	79	< 10	08/15/13 - DS
134092	8805568	07/18/13	#2 North - W&B	16	< 10	08/15/13 - DS
134093	8805567	07/18/13	#3 East - WTP	67	< 10	08/15/13 - DS
134094	8805558	07/19/13	#1 South - Office	12	< 10	08/15/13 - DS
134095	8805560	07/19/13	#2 North - W&B	34	< 10	08/15/13 - DS
134096	8805559	07/19/13	#3 East - WTP	14	< 10	08/15/13 - DS

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ANALYSIS REPORT

Client Information:

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Chain of Custody No.: 13-0833
Date Received: 08/16/13
Analysis Method: 40 CFR §50
Appendix G

Location Elvins River
Mines

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
134196	8805545	07/22/13	#1 South - Office	210	< 10	08/21/13 - DS
134197	8805548	07/22/13	#2 North - W&B	161	< 10	08/21/13 - DS
134198	8805546	07/22/13	#3 East - WTP	163	< 10	08/21/13 - DS
134199	8805534	07/23/13	#1 South - Office	152	< 10	08/21/13 - DS
134200	8805536	07/23/13	#2 North - W&B	52	< 10	08/21/13 - DS
134201	8805535	07/23/13	#3 East - WTP	27	< 10	08/21/13 - DS
134202	8805524	07/24/13	#1 South - Office	357	< 10	08/21/13 - DS
134203	8805526	07/24/13	#2 North - W&B	58	< 10	08/21/13 - DS
134204	8805525	07/24/13	#3 East - WTP	41	< 10	08/21/13 - DS
134205	8805514	07/25/13	#1 South - Office	348	< 10	08/21/13 - DS
134206	8805516	07/25/13	#2 North - W&B	19	< 10	08/21/13 - DS
134207	8805515	07/25/13	#3 East - WTP	27	< 10	08/21/13 - DS
134208	8805503	07/26/13	#1 South - Office	40	< 10	08/21/13 - DS
134209	8805505	07/26/13	#2 North - W&B	31	< 10	08/21/13 - DS
134210	8805504	07/26/13	#3 East - WTP	18	< 10	08/21/13 - DS
134211	8718693	07/29/13	#1 South - Office	117	< 10	08/21/13 - DS
134212	8718695	07/29/13	#2 North - W&B	60	< 10	08/21/13 - DS
134213	8718694	07/29/13	#3 East - WTP	38	< 10	08/21/13 - DS
134214	8718683	07/30/13	#1 South - Office	219	< 10	08/21/13 - DS
134215	8718685	07/30/13	#2 North - W&B	< 10	< 10	08/21/13 - DS
134216	8718684	07/30/13	#3 East - WTP	< 10	< 10	08/21/13 - DS
134217	8718672	07/31/13	#1 South - Office	732	< 10	08/21/13 - DS
134218	8718674	07/31/13	#2 North - W&B	< 10	< 10	08/21/13 - DS
134219	8718673	07/31/13	#3 East - WTP	23	< 10	08/21/13 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0745
Date Received: 07/19/13
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
133798	8803583	07/01/13	#4 Primary	46	< 10	07/24/13 - DS
133799	8803572	07/02/13	#4 Primary	< 10	< 10	07/24/13 - DS
133800	8803596	07/02/13	#4 QA	< 10	< 10	07/24/13 - DS
133801	8803562	07/03/13	#4 Primary	17	< 10	07/24/13 - DS

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0778
Date Received: 08/01/13
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
133905	8803575	07/02/13	#4 QA	42	< 10	08/05/13 - DS
133906	8803552	07/08/13	#4 Primary	32	< 10	08/05/13 - DS
133907	8803541	07/09/13	#4 Primary	37	< 10	08/05/13 - DS
133908	8803551	07/09/13	#4 QA	13	< 10	08/05/13 - DS
133909	8803531	07/10/13	#4 Primary	109	< 10	08/05/13 - DS
133910	8803521	07/11/13	#4 Primary	13	< 10	08/05/13 - DS
133911	8803510	07/12/13	#4 Primary	18	< 10	08/05/13 - DS

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Date: 2013.08.09 14:07:11
-05'00'

Submitted by: _____

8/9/13

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0805
Date Received: 08/13/13
Analysis Method: 40 CFR §50
Appendix G

Location Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
134075	8803500	07/15/13	#4 Primary	34	< 10	08/15/13 - DS
134076	8805590	07/16/13	#4 Primary	73	< 10	08/15/13 - DS
134077	8803517	07/16/13	#4 QA	79	< 10	08/15/13 - DS
134078	8805579	07/17/13	#4 Primary	45	< 10	08/15/13 - DS
134079	8805569	07/18/13	#4 Primary	29	< 10	08/15/13 - DS
134080	8805580	07/18/13	#4 QA	28	< 10	08/15/13 - DS
134081	8805561	07/19/13	#4 Primary	22	< 10	08/15/13 - DS

Digitally signed by
Jennifer Vandelicht
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Vandelicht, o=Inovatia
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ou=Quality Assurance,
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Date: 2013.08.16 15:52:54
-05'00'

Submitted by: _____

8/16/13

Date

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ANALYSIS REPORT

Client Information:

Barr Engineering Company
7390 Ohms Lane
Edina, MN 55439-2330

Chain of Custody No.: 13-0833
Date Received: 08/16/13
Analysis Method: 40 CFR §50
Appendix G
Location
Big River

Lab No.	Filter ID	Date	Site	µg Pb/Filter	µg Cd/Filter	Date - Analyst
134185	8805549	07/22/13	#4 Primary	96	< 10	08/21/13 - DS
134186	8805537	07/23/13	#4 Primary	142	< 10	08/21/13 - DS
134187	8805547	07/23/13	#4 QA	150	< 10	08/21/13 - DS
134188	8805527	07/24/13	#4 Primary	25	< 10	08/21/13 - DS
134189	8805517	07/25/13	#4 Primary	95	< 10	08/21/13 - DS
134190	8805509	07/25/13	#4 QA	457	< 10	08/21/13 - DS
134191	8805506	07/26/13	#4 Primary	< 10	< 10	08/21/13 - DS
134192	8718696	07/29/13	#4 Primary	27	< 10	08/21/13 - DS
134193	8718686	07/30/13	#4 Primary	< 10	< 10	08/21/13 - DS
134194	8718697	07/30/13	#4 QA	< 10	< 10	08/21/13 - DS
134195	8718675	07/31/13	#4 Primary	26	< 10	08/21/13 - DS

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-05'00"

Submitted by: _____

8/27/13

Date

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Meteorological Data

Meteorological Report
The Doe Run Company
Wind Speed

Site Name: Rivermines

Average Interval: 01 Hour

Units: mph

Sampling Frequency: 01 Second

2013	Hour	Wind Speed Data (mph)																								24 Hour Avg	
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max
1-Jul		3.2	4.2	4.4	3.3	2.3	2.1	3.3	4.2	4.7	6.4	7.9	7.8	10.0	9.9	8.0	6.0	4.2	0.8	0.1	0.2	0.5	0.0	2.3	1.9	10.0	4.1
2-Jul		2.7	3.5	1.8	0.9	0.1	0.5	2.4	3.2	3.9	5.5	5.1	5.2	6.1	7.0	6.3	6.2	5.7	4.1	2.0	0.2	0.2	0.1	0.2	0.1	7.0	3.0
3-Jul		0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.7	1.1	1.4	1.5	1.5	1.4	2.5	1.5	1.7	2.0	3.5	1.6	1.2	2.2	0.8	0.0	3.5	1.0
4-Jul		0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.4	1.8	2.6	3.3	3.4	3.4	3.5	3.0	2.8	3.0	1.8	0.1	0.1	0.2	0.2	0.2	3.5	1.3
5-Jul		0.1	0.1	0.2	0.1	0.1	0.0	0.1	0.4	0.7	1.4	1.3	3.2	2.4	0.5	3.4	3.9	2.5	0.6	0.0	0.0	0.0	0.1	0.0	0.0	3.9	0.9
6-Jul		0.2	0.2	0.0	0.0	0.0	0.1	0.1	1.1	0.5	1.5	0.7	1.2	1.9	2.5	3.0	2.9	3.8	0.9	0.4	1.8	1.4	1.1	0.3	0.1	3.8	1.1
7-Jul		1.8	1.8	0.3	0.1	0.1	0.2	0.1	0.1	1.9	4.0	3.5	3.8	3.6	4.7	4.2	4.8	4.6	3.8	3.6	1.5	1.6	2.0	0.8	0.3	4.8	2.2
8-Jul		0.9	1.1	0.0	0.2	0.2	0.0	1.5	4.0	3.7	4.1	4.4	3.3	3.5	4.4	4.6	5.2	5.0	3.8	1.0	1.2	0.3	1.0	1.2	0.6	5.2	2.3
9-Jul		1.8	0.2	0.4	0.1	0.2	0.1	0.1	2.3	2.3	1.6	2.3	4.4	5.1	3.8	3.4	4.6	4.5	2.5	0.7	1.8	4.1	5.2	5.9	4.2	5.9	2.6
10-Jul		0.4	0.4	0.1	0.2	0.7	3.9	1.0	1.7	0.8	1.7	2.0	1.3	0.7	1.5	2.2	1.5	0.6	1.2	0.5	0.0	0.1	0.1	0.0	0.1	3.9	0.9
11-Jul		0.1	0.2	0.3	0.3	0.1	0.1	1.2	3.6	3.2	5.3	5.3	5.9	4.9	4.9	4.2	4.9	4.2	3.2	1.5	0.2	0.1	0.0	0.4	0.1	5.9	2.3
12-Jul		0.2	0.2	0.1	0.2	0.1	0.0	0.1	1.1	1.9	4.1	4.0	3.1	3.1	3.7	3.3	2.9	2.8	1.9	0.7	0.2	0.2	0.2	0.2	0.3	4.1	1.4
13-Jul		0.2	0.1	0.2	0.1	0.2	0.1	0.1	0.2	1.0	1.8	2.9	3.4	4.4	3.7	3.0	3.6	2.7	2.5	1.7	0.2	0.0	0.3	0.1	0.1	4.4	1.4
14-Jul		0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.6	2.0	3.4	3.1	4.5	5.0	5.5	4.9	4.6	3.5	4.4	3.9	2.2	0.4	0.0	0.1	0.2	5.5	2.0
15-Jul		0.0	0.0	0.0	0.0	0.0	0.1	3.4	4.5	4.3	4.0	3.9	4.3	4.8	5.6	5.5	3.9	3.2	3.3	2.5	0.9	1.4	1.1	0.4	0.0	5.6	2.4
16-Jul		0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.8	2.4	2.9	3.7	2.2	2.6	2.4	3.7	2.6	3.5	3.4	2.4	0.4	0.0	0.1	0.1	0.0	3.7	1.4
17-Jul		0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.4	0.7	2.7	1.5	2.3	1.7	2.5	2.2	0.8	0.2	0.1	0.3	0.1	0.1	0.3	0.3	2.7	0.7
18-Jul		0.2	0.3	0.2	0.2	0.3	0.2	0.1	0.0	0.7	1.1	1.7	2.0	2.8	1.8	1.1	2.5	3.6	1.7	0.9	2.7	3.0	1.7	0.1	0.1	3.6	1.2
19-Jul		0.1	0.2	0.2	0.1	0.1	0.0	1.6	3.9	4.3	3.4	2.7	2.1	2.4	4.1	3.7	3.1	1.2	0.4	0.1	0.2	1.0	0.2	0.2	0.2	4.3	1.5
20-Jul		0.5	0.2	0.2	0.1	0.1	0.1	0.4	2.8	1.9	1.5	1.8	2.3	2.8	2.9	4.8	2.9	0.5	0.9	0.3	2.2	0.4	0.2	0.4	0.5	4.8	1.3
21-Jul		1.9	0.8	0.3	0.1	0.0	0.0	0.1	0.3	0.3	0.9	1.1	0.6	0.8	1.2	1.1	0.4	1.6	3.0	0.3	0.5	0.3	0.2	0.2	0.1	3.0	0.7
22-Jul		0.1	0.2	0.6	1.0	0.8	0.6	0.4	0.5	0.7	0.7	1.1	1.1	1.7	1.9	2.1	2.2	2.6	0.5	0.2	0.1	0.2	1.3	1.1	0.5	2.6	0.9
23-Jul		0.1	0.2	0.3	0.3	1.6	0.3	0.2	0.8	1.5	1.8	2.6	2.2	2.3	3.9	3.4	5.2	3.7	2.6	5.5	2.1	0.1	1.1	0.2	0.2	5.5	1.7
24-Jul		0.0	0.1	0.2	0.1	0.9	2.5	3.5	3.5	3.8	4.6	4.5	4.1	3.5	4.8	5.3	4.5	4.4	4.6	2.1	0.3	0.1	0.4	0.2	0.2	5.3	2.4
25-Jul		0.1	0.3	0.1	0.1	0.1	0.1	0.1	0.3	0.2	1.7	4.0	3.5	3.0	3.0	3.0	2.5	2.2	0.6	0.3	0.1	0.1	0.0	0.2	4.0	1.1	
26-Jul		0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.1	2.6	4.0	3.1	1.6	0.7	1.0	1.4	2.2	2.1	1.1	0.3	0.4	1.4	0.2	0.2	0.1	4.0	1.0
27-Jul		1.2	0.8	0.5	0.4	0.1	2.1	2.8	4.1	5.1	5.8	5.3	5.5	6.3	5.1	5.9	4.4	4.5	5.2	3.0	0.1	0.1	0.2	0.2	0.2	6.3	2.9
28-Jul		0.2	0.1	0.2	0.1	0.1	0.2	0.2	0.8	1.4	2.2	3.7	2.6	4.3	4.3	2.4	5.5	4.4	2.6	2.1	0.4	0.0	0.4	0.1	0.1	5.5	1.6
29-Jul		0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.4	0.1	0.3	0.8	3.6	4.6	3.7	3.0	1.2	0.7	1.7	1.8	1.8	4.0	5.4	4.6	3.7	5.4	1.8
30-Jul		4.3	3.0	5.4	6.2	7.1	5.4	3.7	4.7	3.3	2.1	3.0	2.4	2.2	2.2	3.0	1.9	2.9	3.1	1.5	0.1	0.1	0.1	0.3	7.1	2.8	
31-Jul		0.3	0.1	0.1	0.1	0.1	0.0	0.7	3.3	2.9	2.8	4.1	4.9	4.2	3.7	5.9	6.5	7.4	5.0	3.1	2.5	6.1	4.3	1.6	0.0	7.4	2.9

		Maximum Hour//Monthly Average	10.0	1.8
		Total Hours in Month	744	
		Valid Hours//Percent Data Captured	744	100.0%
BARR				

Meteorological Report
The Doe Run Company
Wind Direction

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

Sampling Frequency: 01 Second

2013	Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24 Hour Avg
Day																										
1-Jul	338	337	341	346	334	321	336	343	348	349	358	346	358	1	1	358	13	67	220	204	324	345	336	356	278	
2-Jul	5	1	341	323	319	324	326	326	324	329	333	331	333	333	330	335	331	333	335	264	220	218	230	230	282	
3-Jul	240	222	186	224	226	210	229	212	217	236	302	239	163	169	79	99	185	182	146	156	157	163	167	14	184	
4-Jul	182	177	219	175	176	181	352	91	139	98	115	76	74	89	85	78	81	90	109	195	194	200	183	196	148	
5-Jul	202	160	201	184	176	209	212	195	325	31	88	88	75	171	1	2	39	34	226	194	188	192	203	0	141	
6-Jul	181	181	198	197	218	178	188	196	234	213	258	183	154	144	197	213	161	164	207	113	154	167	91	150	181	
7-Jul	164	183	192	193	181	182	190	241	229	232	220	211	196	179	186	179	183	183	186	186	178	189	201	206	194	
8-Jul	193	200	193	194	209	208	218	221	232	235	192	218	201	167	183	192	195	213	205	180	205	197	202	216	203	
9-Jul	208	202	194	224	198	216	224	223	238	241	240	220	209	222	221	225	215	217	205	177	178	179	188	193	211	
10-Jul	220	197	195	197	245	298	305	203	238	286	241	252	252	229	241	252	272	340	337	330	198	220	204	193	248	
11-Jul	207	193	193	189	187	241	348	11	3	24	22	23	28	19	22	19	20	31	33	24	188	191	184	184	108	
12-Jul	182	184	196	179	211	179	200	88	80	106	94	80	66	34	73	69	75	56	26	191	188	189	187	181	130	
13-Jul	177	191	205	193	206	198	247	258	351	31	70	43	82	60	64	40	73	59	75	72	78	68	189	183	134	
14-Jul	207	184	184	180	189	179	45	125	86	110	82	102	107	124	118	103	117	106	109	78	106	354	199	30	134	
15-Jul	133	12	53	233	181	181	161	164	173	177	168	134	121	106	124	101	63	100	106	96	139	163	190	185	136	
16-Jul	194	216	236	191	211	18	359	163	156	170	174	146	131	120	116	97	92	112	116	121	90	206	198	194	160	
17-Jul	178	189	192	198	189	191	282	183	283	311	18	32	38	12	80	75	128	213	205	205	198	200	198	193	166	
18-Jul	190	193	198	195	191	197	215	244	284	266	325	54	71	48	61	212	165	170	164	171	184	196	214	200	184	
19-Jul	215	211	230	233	194	184	234	218	218	223	220	216	204	119	177	158	218	224	218	221	214	202	201	197	206	
20-Jul	203	213	202	193	189	206	214	219	233	230	270	314	300	309	181	157	216	228	210	93	160	220	212	208	216	
21-Jul	223	221	184	188	174	20	186	107	205	215	241	255	228	310	250	218	206	215	77	194	190	193	199	196	196	
22-Jul	199	195	222	230	237	239	259	267	268	242	255	243	235	224	245	235	218	238	212	207	206	225	221	223	231	
23-Jul	213	203	192	197	227	229	199	235	237	242	230	237	289	323	325	331	329	322	225	153	209	207	197	189	239	
24-Jul	184	197	186	195	20	22	25	24	56	30	38	47	28	32	7	15	24	28	25	23	193	185	182	188	81	
25-Jul	182	177	198	215	217	202	242	236	349	16	11	28	24	16	81	38	30	64	174	121	205	203	195	192	142	
26-Jul	210	179	182	187	174	203	209	313	208	209	216	230	230	210	215	215	207	212	213	191	211	214	212	200	210	
27-Jul	221	231	244	244	231	334	328	325	339	335	337	324	323	323	329	317	317	327	334	328	182	178	188	175	284	
28-Jul	176	201	187	183	195	171	223	304	355	225	223	240	219	225	264	230	230	215	227	226	191	180	180	186	222	
29-Jul	233	194	179	189	183	181	202	335	309	220	165	175	167	181	217	181	173	139	160	145	165	174	160	152	191	
30-Jul	147	151	160	165	174	182	190	192	183	182	187	170	166	175	181	178	185	183	187	193	175	188	190	186	178	
31-Jul	188	189	185	194	199	235	343	351	355	2	353	342	331	344	344	331	341	339	337	332	351	349	339	235	288	



Total Hours in Month	744
Valid Hours	744
Percent Data Captured	100.0%

Meteorological Report

The Doe Run Company

$\Sigma\Theta$

Site Name: Rivermines

Average Interval: 01 Hour

Units: Degrees

2013	Hour																									24 Hour Avg
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1-Jul	20	21	19	17	19	20	20	20	20	21	21	23	21	22	20	19	24	21	11	7	18	4	16	14	18	18
2-Jul	20	20	16	12	5	13	18	20	21	23	21	21	21	22	21	21	20	18	9	8	4	7	6	16	16	16
3-Jul	9	7	3	6	3	5	13	8	23	38	35	37	40	45	36	40	18	18	23	13	12	16	13	0	19	19
4-Jul	3	1	6	3	3	4	4	8	18	39	43	36	37	41	34	33	30	29	21	1	2	7	4	6	17	17
5-Jul	12	6	13	13	2	1	14	9	27	27	40	36	35	24	19	21	27	8	1	1	1	3	1	0	14	14
6-Jul	2	1	0	2	2	6	7	18	21	29	21	40	47	35	23	36	24	21	14	22	19	18	11	10	18	18
7-Jul	29	23	9	6	4	5	3	14	29	30	32	26	30	27	30	27	24	20	20	13	12	17	12	12	19	19
8-Jul	14	14	3	10	5	4	17	22	27	28	27	28	29	29	28	22	21	12	11	5	13	14	18	18	18	
9-Jul	17	8	8	5	5	5	12	23	31	35	36	28	29	24	24	28	23	19	10	13	19	19	19	19	19	
10-Jul	13	6	3	4	16	41	25	16	20	32	43	29	31	30	31	32	28	16	9	3	1	4	2	3	18	
11-Jul	2	4	9	6	3	4	11	19	20	29	29	27	33	30	30	28	26	29	25	8	1	3	2	4	16	
12-Jul	5	7	6	4	7	5	13	26	27	33	33	40	42	37	30	37	36	29	14	6	3	5	5	4	19	
13-Jul	3	6	9	7	10	6	13	21	17	37	42	38	43	38	38	36	27	26	18	9	2	19	1	1	19	
14-Jul	2	6	4	6	8	6	12	17	30	33	34	30	34	35	28	30	31	28	27	22	17	5	13	8	19	
15-Jul	8	2	4	0	1	3	20	26	27	29	31	31	34	30	29	31	28	26	26	17	17	15	9	1	19	
16-Jul	0	3	1	1	1	0	2	22	28	36	34	38	41	30	29	28	31	26	21	9	1	1	2	1	16	
17-Jul	7	2	8	8	3	2	12	10	25	30	35	30	35	36	31	36	14	4	2	1	0	1	7	3	14	
18-Jul	2	4	7	8	6	7	9	6	30	36	35	33	44	31	22	24	21	16	12	19	20	17	5	4	17	
19-Jul	6	6	7	8	6	4	4	18	24	27	31	34	39	41	31	25	26	18	10	6	9	14	5	6	17	
20-Jul	8	7	9	5	2	6	15	22	31	37	38	34	35	35	54	26	24	19	10	21	11	10	9	11	20	
21-Jul	19	18	9	3	0	14	2	13	14	26	29	28	15	29	32	12	12	19	15	13	11	3	11	5	15	
22-Jul	4	14	12	16	17	23	32	28	31	30	33	35	35	32	32	35	21	16	8	2	5	5	15	12	21	
23-Jul	5	6	5	7	23	18	7	23	26	32	36	35	29	31	23	30	22	27	29	8	14	16	6	21		
24-Jul	2	9	6	9	12	21	24	27	35	33	36	42	36	40	28	25	28	25	17	9	6	5	2	2	20	
25-Jul	5	5	8	4	3	6	9	19	17	34	28	36	46	42	50	37	32	23	14	4	5	1	3	7	18	
26-Jul	11	2	2	6	1	1	5	13	22	22	21	22	18	14	17	17	19	15	12	5	14	8	6	4	12	
27-Jul	16	20	20	14	2	16	19	23	23	31	23	31	30	38	31	31	28	25	17	3	4	2	4	5	19	
28-Jul	4	5	6	3	5	3	15	16	25	33	42	33	43	31	29	40	27	25	18	20	12	1	2	3	18	
29-Jul	8	8	4	6	9	6	6	11	7	16	24	31	29	27	22	18	13	18	18	19	22	22	24	24	16	
30-Jul	24	25	24	24	23	25	26	19	22	23	22	21	20	18	21	18	15	7	2	1	1	1	1	18		
31-Jul	1	2	2	6	6	0	8	17	17	25	23	22	28	29	26	25	21	22	18	17	18	15	14	1	15	



Total Hours in Month
Valid Hours
Percent Data Captured

744
744
100.0%

Meteorological Report
The Doe Run Company
Temperature

Site Name: Rivermines

Average Interval: 01 Hour

Units: Deg. C

Sampling Frequency: 01 Second

2013	Hour	24 Hour																									
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max
1-Jul	18.2	18.2	18.1	17.7	17.1	16.5	17.1	17.4	18.3	21.2	22.6	24.2	24.9	24.6	23.8	22.4	19.4	19.2	18.9	19.1	18.7	19.0	18.7	24.9	20.0		
2-Jul	18.3	18.3	18.0	17.1	16.6	16.7	16.8	16.5	16.4	16.5	16.7	16.9	17.3	17.7	17.4	17.5	17.3	17.4	16.9	16.4	16.1	15.6	15.3	18.3	16.9		
3-Jul	15.2	15.0	14.8	14.8	14.9	15.3	17.0	19.3	22.4	24.4	25.6	26.8	26.6	27.7	27.2	27.6	26.9	26.3	25.1	23.1	21.4	20.5	19.7	17.6	27.7	21.5	
4-Jul	16.3	15.4	14.8	14.1	13.6	14.2	17.9	20.9	24.3	25.6	26.5	27.1	27.7	28.0	28.2	28.1	27.3	26.3	22.6	21.9	21.0	20.0	19.5	19.1	27.5	21.6	
5-Jul	16.1	15.7	15.1	14.7	15.4	16.6	18.7	20.0	22.0	24.1	26.3	27.0	27.5	26.9	26.6	25.3	23.7	22.8	23.1	21.9	21.0	20.0	19.5	19.1	27.5	21.2	
6-Jul	18.4	17.8	17.4	16.9	16.8	16.4	19.7	23.3	26.1	27.4	28.9	29.7	29.3	25.5	26.6	22.9	25.9	26.1	26.1	24.1	21.9	20.8	20.0	19.1	29.7	22.8	
7-Jul	20.0	19.6	18.7	17.8	17.1	17.7	21.5	24.5	27.8	29.4	30.6	31.5	32.1	32.0	32.3	32.0	31.7	30.5	29.0	26.6	24.9	24.2	23.0	21.4	32.3	25.7	
8-Jul	21.7	21.4	20.0	19.7	19.9	20.6	24.8	27.9	29.8	30.9	31.4	32.7	33.2	32.7	33.7	32.8	32.6	32.2	30.5	27.7	25.3	24.9	24.9	23.2	33.7	27.3	
9-Jul	25.4	24.7	23.6	22.8	22.2	22.9	26.4	29.6	31.5	32.9	34.0	33.8	34.6	34.7	34.2	35.0	34.3	32.7	31.3	29.4	28.9	28.4	28.0	27.9	35.0	29.5	
10-Jul	27.0	25.3	24.5	23.8	23.8	23.7	22.8	22.4	22.9	22.8	24.7	27.4	30.0	30.1	29.9	29.0	28.2	26.5	25.4	24.2	23.2	22.4	30.1	25.5	30.1	25.5	
11-Jul	21.7	20.9	20.2	19.7	19.1	19.3	21.9	23.0	24.1	26.0	26.3	26.7	27.4	27.8	27.7	27.8	27.7	26.6	25.5	23.3	19.7	18.2	17.0	16.1	27.8	23.1	
12-Jul	15.4	15.0	14.7	14.2	13.6	14.0	17.3	20.9	23.4	24.9	25.5	26.6	27.2	27.6	28.1	28.3	28.0	27.4	26.4	22.7	19.3	17.6	16.5	15.8	28.3	21.3	
13-Jul	15.1	14.8	14.5	13.9	13.6	14.0	17.4	21.1	23.4	25.9	26.7	27.0	27.7	28.0	28.0	28.0	27.6	26.7	24.8	23.0	21.8	19.3	18.6	28.2	22.0	30.0	
14-Jul	17.5	16.9	16.2	15.6	15.2	15.8	19.3	22.8	25.1	27.3	28.1	28.7	28.9	29.7	30.0	29.7	29.8	28.8	24.8	23.9	23.0	22.5	22.0	21.6	30.0	23.5	
15-Jul	21.7	21.2	20.8	20.4	20.5	20.7	23.8	25.7	27.5	28.8	29.9	30.2	30.9	30.9	29.8	29.7	29.3	28.6	28.6	27.6	26.8	25.8	24.5	23.9	30.9	26.1	
16-Jul	22.8	22.0	21.4	21.0	20.6	21.2	24.6	27.1	28.4	29.9	30.8	31.4	31.8	32.1	32.1	32.2	31.8	31.2	30.6	29.0	26.8	24.5	23.6	22.8	32.2	27.1	
17-Jul	22.4	21.7	21.5	21.0	20.4	20.7	24.6	28.0	31.0	32.0	32.0	32.2	32.5	32.7	32.9	33.2	31.9	29.9	28.9	26.8	25.0	24.0	23.2	22.7	33.2	27.1	
18-Jul	22.2	21.8	21.7	21.3	21.0	21.6	24.9	28.6	31.1	33.1	33.6	33.6	33.7	33.7	33.1	29.9	31.4	30.4	29.6	28.1	27.0	26.1	24.5	23.3	33.7	27.7	
19-Jul	22.8	22.1	21.5	21.3	20.9	21.2	24.8	28.5	30.6	32.1	33.3	34.1	34.4	34.1	34.7	34.1	30.7	28.1	26.9	25.6	24.2	24.7	23.8	23.0	34.7	27.4	
20-Jul	22.8	22.7	22.3	21.6	21.4	21.9	25.7	28.7	30.7	32.3	33.0	34.5	35.4	35.4	35.4	35.4	25.6	21.2	21.3	21.6	21.8	22.0	21.6	21.2	20.9	35.4	25.2
21-Jul	21.1	21.2	21.0	21.0	21.1	21.2	21.6	22.3	24.4	27.4	28.1	27.9	27.4	27.4	29.1	29.3	28.0	24.0	23.2	22.8	22.4	21.8	21.5	20.8	29.3	24.0	
22-Jul	20.2	20.3	20.7	20.7	20.8	21.1	21.8	23.0	24.9	27.0	29.4	30.3	31.8	32.6	33.2	33.0	31.8	31.0	29.9	27.2	25.7	26.1	25.3	24.6	33.2	26.3	
23-Jul	23.4	22.7	22.1	21.6	22.3	23.3	24.2	26.7	28.8	30.4	31.8	32.7	32.3	32.8	33.6	33.1	33.1	31.2	27.2	22.4	21.7	21.9	21.0	20.0	33.6	26.7	
24-Jul	19.6	19.4	19.3	19.1	20.3	20.7	20.6	21.0	22.5	23.5	23.9	24.8	25.9	26.2	26.9	27.1	26.6	25.5	24.3	22.3	18.8	17.2	16.3	15.2	27.1	22.0	
25-Jul	14.7	14.0	13.5	13.3	12.8	12.8	15.6	18.0	21.0	23.3	24.3	25.1	25.8	26.5	26.3	26.8	26.7	26.2	24.8	21.9	19.3	18.2	17.3	17.1	26.8	20.2	
26-Jul	17.1	16.6	16.9	15.6	15.4	16.0	18.0	20.6	22.8	24.0	24.6	24.7	23.8	22.9	22.4	22.4	22.5	22.2	21.5	21.1	20.8	20.1	19.2	24.7	20.6		
27-Jul	19.6	19.9	20.0	19.9	19.7	19.5	18.8	19.6	21.4	22.6	23.2	23.9	24.7	25.0	25.1	25.0	24.1	23.3	22.0	18.6	16.0	14.3	13.1	12.5	25.1	20.5	
28-Jul	12.0	11.9	11.3	10.7	10.1	10.5	14.5	18.0	21.0	23.5	24.9	25.4	26.0	25.9	26.0	26.7	25.8	23.8	22.5	21.1	20.0	18.1	16.3	15.4	26.7	19.2	
29-Jul	15.3	15.2	14.6	14.6	15.4	15.9	17.0	18.2	19.6	21.7	23.0	24.0	24.7	24.9	24.8	24.1	23.8	23.5	22.7	21.9	21.5	21.2	21.0	21.0	24.9	20.4	
30-Jul	21.1	21.0	20.9	20.2	20.0	20.3	20.4	19.2	19.4	20.0	20.4	21.4	22.0	22.5	23.0	23.2	24.2	24.0	23.8	23.2	22.8	21.9	21.5	21.0	24.2	21.6	
31-Jul	20.8	20.5	20.4	20.8	21.0	21.5	22.4	23.1	23.8	25.1	25.8	26.2	27.3	28.6	29.0	29.1	28.3	27.2	26.0	24.2	23.7	22.9	21.2	19.1	29.1	24.1	

 BARR	Maximum Hour//Monthly Average Total Hours in Month Valid Hours Percent Data Captured	35.4 744 744 100.0%
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Meteorological Report
The Doe Run Company
Site Pressure

Site Name: Rivermines

Average Interval: 01 Hour

Units: mmHg

Sampling Frequency: 01 Second

2013	Hour	24 Hour																									
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max
1-Jul	742	742	742	742	742	743	743	743	744	743	743	743	743	743	743	743	743	743	743	744	744	744	744	744	744	744	743
2-Jul	743	743	743	743	743	744	744	744	745	745	745	745	745	745	745	745	745	746	746	746	746	746	746	746	746	745	
3-Jul	746	746	746	746	746	747	747	747	747	747	747	747	747	746	746	745	745	745	745	745	745	746	746	746	746	746	
4-Jul	746	746	746	746	746	747	747	747	747	747	747	747	747	746	746	745	745	745	745	745	745	745	745	745	745	746	
5-Jul	746	746	745	745	746	746	746	746	747	747	746	746	746	746	745	745	745	745	745	745	745	745	745	745	745	746	
6-Jul	745	745	745	745	745	746	746	746	746	746	746	746	745	745	745	745	745	745	745	745	745	745	745	745	745	745	
7-Jul	745	745	745	745	745	746	746	746	746	746	746	746	745	745	745	745	745	745	745	744	744	744	745	745	746	746	745
8-Jul	746	746	746	746	746	747	747	747	747	747	747	747	747	746	746	746	746	746	745	745	745	746	746	746	747	746	
9-Jul	746	746	746	746	746	746	746	746	746	746	746	746	746	746	746	746	746	746	745	745	745	746	746	746	746	746	
10-Jul	744	743	743	743	743	745	745	745	745	744	744	743	744	744	743	743	743	742	743	743	744	744	744	744	744	745	
11-Jul	744	744	745	745	745	745	745	745	745	745	745	745	745	745	745	745	745	745	745	745	745	744	744	744	745	744	
12-Jul	746	746	746	746	747	747	747	747	747	747	747	747	746	746	746	746	745	745	745	745	745	746	746	746	746	745	
13-Jul	746	746	746	746	747	747	747	747	747	747	747	747	746	746	746	745	745	745	745	745	745	745	746	746	746	746	
14-Jul	746	746	746	746	746	746	747	747	747	747	747	747	747	747	746	746	746	746	746	746	746	746	746	746	746	746	
15-Jul	748	748	748	748	749	749	749	749	750	750	750	750	749	749	749	749	748	748	748	749	749	749	750	750	750	749	
16-Jul	750	750	750	750	751	751	751	751	752	752	752	752	752	751	751	750	750	750	750	751	751	751	751	752	752	751	
17-Jul	752	752	752	752	752	752	752	752	753	753	752	752	752	752	752	751	751	751	750	750	750	750	750	750	750	751	
18-Jul	750	750	749	749	749	749	749	749	749	749	749	749	748	747	747	746	746	746	746	746	746	746	746	746	746	748	
19-Jul	745	745	745	745	745	745	745	745	745	745	745	745	745	744	744	743	742	742	742	742	743	743	743	743	743	744	
20-Jul	743	743	743	742	742	742	742	742	742	742	742	742	742	741	740	741	741	741	741	742	742	742	743	743	743	744	
21-Jul	743	743	742	742	743	743	743	743	743	743	743	743	743	742	742	741	741	741	741	741	741	741	741	741	742	742	
22-Jul	741	741	741	741	741	741	741	741	741	742	742	742	742	741	741	741	741	740	739	740	740	740	741	741	742	742	
23-Jul	741	741	741	740	740	740	740	741	741	741	741	741	741	740	740	740	740	739	740	741	742	742	742	742	741	741	
24-Jul	742	742	742	742	743	743	743	743	743	744	744	744	744	744	744	744	744	744	744	744	744	744	744	744	744	744	
25-Jul	746	745	745	746	746	747	747	747	747	747	747	747	747	747	747	747	746	746	746	746	746	746	746	746	746	746	
26-Jul	746	746	745	746	746	746	746	746	746	746	746	746	746	746	746	746	745	745	745	744	744	744	744	744	744	745	
27-Jul	744	744	744	744	744	744	744	744	745	745	745	744	744	744	744	744	744	744	744	744	744	744	744	744	744	745	
28-Jul	745	745	745	745	746	746	746	746	746	746	746	746	745	745	745	745	745	745	745	744	744	745	745	745	745	744	
29-Jul	746	746	747	747	747	747	748	748	748	749	749	748	748	748	748	748	748	747	747	747	748	748	747	747	746	745	
30-Jul	747	747	747	747	747	747	747	747	747	747	747	747	747	746	746	745	745	745	745	745	745	745	745	745	745	746	
31-Jul	745	745	745	745	745	745	745	745	746	746	746	746	746	745	745	745	745	744	744	744	745	745	746	746	745	745	

 BARR	Maximum Hour//Monthly Average	753	745
	Total Hours in Month	744	744
	Valid Hours//Percent Data Captured	100.0%	

Meteorological Report
The Doe Run Company
Precipitation

Site Name: Rivermines

Average Interval: 01 Hour
Sampling Frequency: 01 Second

2013	Hour	24 Hour																											
		Day	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Max	Total	
1-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01		
2-Jul	0.00	0.00	0.00	0.00	0.01	0.01	0.02	0.02	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.09		
3-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
4-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
5-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.15	0.00	0.00	0.00	0.00	0.00	0.15	0.28	
6-Jul	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.25	
7-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.07	0.02	0.04	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.20		
12-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.49	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.49	0.53
21-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01		
22-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
23-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
24-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
25-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
26-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
27-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.03		
28-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
29-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
30-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.02	0.03	0.00	0.02	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.18		
31-Jul	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

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Maximum Hour//Monthly Total	0.49	1.58
Total Hours in Month	744	
Valid Hours//Percent Data Captured	744	100.0%